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January 1940

Test 361: Allis-Chalmers Model WD-10W (Wide Tread)

Tractor Museum

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UNIVERSITY OF NEBRASKA - AGRICULTURAL ENGINEERING DEPARTMENT
AGRICULTURAL COLLEGE, LINCOLN

Copy of Report of Official Tractor Test No. 361

Dates of test: October 15 to 25, 1940.

Name and model of tractor: ALLIS-CHALMERS HD-10W(Wide Tread)

Manufacturer: Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin.

Manufacturer's rating: NOT RATED.

B E L T H O R S E P O W E R T E S T S

| H. P. | Crank shaft speed R.P.M. | Fuel Consumption | | | Water used gal. per hr. | Temp. Deg. F. | | Barometer Inches of Mercury |
|-------|-----------------------------------|--------------------|--------------------------|-------------------------|-------------------------------------|----------------------|-----|-----------------------------------|
| | | Gal. per hr. | H. P. hr. per gal. | Lb. per H. P. hr. | | Cool- ing med. | Air | |

TESTS B AND C - 100% MAXIMUM LOAD - TWO HOURS

| | | | | | | | | |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 98.47 | 1600 | 6.832 | 14.41 | 0.486 | 0.000 | 171 | 59 | 28.975 |
|-------|------|-------|-------|-------|-------|-----|----|--------|

*TEST D - ONE HOUR

| | | | | | | | | |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 86.45 | 1601 | 6.114 | 14.14 | 0.496 | 0.000 | 173 | 68 | 28.975 |
|-------|------|-------|-------|-------|-------|-----|----|--------|

TEST E - VARYING LOAD - TWO HOURS (20 minute runs; last line average)

| | | | | | | | | |
|-------|------|-------|-------|-------|-------|-----|----|--------|
| 86.69 | 1603 | 6.090 | 14.23 | 0.492 | -- | 176 | 75 | -- |
| 1.70 | 1729 | 2.311 | 0.74 | 9.529 | -- | 159 | 74 | -- |
| 45.88 | 1690 | 4.262 | 10.76 | 0.651 | -- | 174 | 74 | -- |
| 96.67 | 1566 | 6.621 | 14.60 | 0.480 | -- | 171 | 75 | -- |
| 22.96 | 1686 | 3.163 | 7.26 | 0.966 | -- | 166 | 73 | -- |
| 66.63 | 1642 | 5.110 | 13.04 | 0.538 | -- | 173 | 74 | -- |
| 53.42 | 1653 | 4.593 | 11.63 | 0.603 | 0.000 | 170 | 74 | 28.815 |

D R A W B A R H O R S E P O W E R T E S T S

| H. P. | Draw bar pull pounds | Speed miles per hr. | Crank shaft speed R.P.M. | Slip on drive wheels % | Fuel Consumption | | | Water used gal. per hr. | Temp. Deg. F. | | Barometer Inches of Mercury |
|-------|-------------------------------|------------------------------|-----------------------------------|------------------------------------|--------------------|---------------------|---------------------------|-------------------------------------|----------------------|-----|-----------------------------------|
| | | | | | Gal. per hr. | H.P. per gal. | Lb. per H.P. hr. | | Cool- ing med. | Air | |

TESTS F AND G - 100% MAXIMUM LOAD

| | | | | | | | | | | |
|-------|-------|------|------|------|-------|--------------|-------|-----|----|--------|
| 81.25 | 19002 | 1.60 | 1596 | 4.83 | ----- | Not Recorded | ----- | 172 | 84 | 28.800 |
| 82.19 | 15507 | 1.99 | 1599 | 3.68 | ----- | " | ----- | 174 | 75 | 28.805 |
| 80.47 | 11421 | 2.64 | 1600 | 2.13 | ----- | " | ----- | 168 | 66 | 28.865 |
| 78.24 | 7867 | 3.73 | 1600 | 1.88 | ----- | " | ----- | 166 | 65 | 28.870 |
| 75.78 | 6190 | 4.59 | 1599 | 1.21 | ----- | " | ----- | 165 | 62 | 28.815 |
| 66.69 | 4157 | 6.02 | 1600 | 1.01 | ----- | " | ----- | 166 | 66 | 28.820 |

*TEST H - TEN HOURS - Second - GEAR

| | | | | | | | | | | | |
|-------|-------|------|------|------|-------|-------|-------|-------|-----|----|--------|
| 65.55 | 12159 | 2.02 | 1601 | 2.13 | 5.640 | 11.62 | 0.603 | 0.000 | 168 | 72 | 28.935 |
|-------|-------|------|------|------|-------|-------|-------|-------|-----|----|--------|

*Formerly called RATED LOAD; see REMARKS 4, page 3.

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FUEL, OIL, AND TIME

Fuel Commercial diesel fuel Weight per gallon 7.01 pounds

Oil: S.A.E. No. 20 To motor 3.608 gal. Drained from motor 2.845 gal.

Total time motor was operated 63 hours

BRIEF SPECIFICATIONS

Advertised speeds, miles per hour: First 1.69 Second 2.06

Third 2.68 Fourth 3.78 Fifth 4.62 Sixth 6.03

Reverse 1.86 - 4.17

Belt pulley: Diam. 13-3/8" Face 10" R.P.M. 929 - 413

Belt speed 3250 - 1445 f.p.m.

Clutch: Make Rockford Type Single plate Operated by hand

Seat Upholstered

Total weight as tested (with operator) 21,630 pounds

MOTOR Make General Motors Serial No. 471877 Type 4 cylinder, vertical,
2 cycle, diesel

Head I Mounting Crankshaft lengthwise Lubrication Pressure

Bore and stroke 4-1/4" x 5" Rated R.P.M. 1600

Port diameter valves: Inlet Multiple ports Exhaust 1-1/4"

Fuel Injection System: Make General Motors

Governor: Make Handy Type Variable speed, centrifugal
Oil-washed, crimped wire,

Air Cleaners: No. 2 Make United Type filter with United pre-cleaner
Combination full flow Purolator metal element and

Oil Filter: partial flow AC renewable absorption type element
Bishop and Babcock thermostat
Cooling medium temperature control: and Pines radiator shutters

CHASSIS

Type Tracklayer Serial No. HD10W-201 Drive Enclosed gear

Tread width: 74" Measured length of track 21.0027'

Cleats: Type Integral with shoes No. per track 32

Size 2-10/32" high x 20" long

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REPAIRS AND ADJUSTMENTS

No repairs or adjustments.

REMARKS

1. All results shown on page 1 of this report were determined from observed data and without allowances, additions, or deductions. Tests B and F were made with fuel pumps as set and sealed by the manufacturer and data from these tests were used in determining the horsepower to be developed in tests D and H, respectively. Tests C, D, E, G, and H were made with the same setting.

| | <u>DRAWBAR</u> | <u>BELT</u> |
|---|----------------|-------------|
| 2. Observed maximum horsepower (tests F & B) | 82.19 | 98.47 |
| 3. Sea level (calculated) maximum horsepower (based on 60° F. and 29.92" Hg.) | 86.63 | 101.62 |
| 4. Seventy-five per cent of calculated maximum drawbar horsepower and eighty-five per cent of calculated maximum belt horsepower (formerly A.S.A.E. and S.A.E. ratings) | 64.97 | 86.38 |

We, the undersigned, certify that the above is a true and correct report of official tractor test No. 361.

Carlton L. Zink
Engineer-in-charge

E. E. Brackett

C. W. Smith

L. W. Hurlbut
Board of Tractor Test Engineers